

Electromotive Systems

IMPULSE *G+ Series 2*
VG+ Series 2

Adjustable Frequency Crane Controls



IMPULSE® G+ and VG+ Series 2 Crane Controls

Magnetek's Electromotive Systems Division has a proven track record of providing unmatched product performance and reliability to the overhead material handling industry. That's why our IMPULSE G+ and VG+ Series 2 Drives are the leading crane controls in the industry. Featuring our exclusive crane and hoist software, these third generation controls offer many features designed for ease of use and enhanced safety.

IMPULSE•G+

Whether used as a scalar control or vector control, the IMPULSE•G+ Series 2 is ideal for many traverse motions and hoists with load brakes.

The IMPULSE Series 2 Crane Controls are ideal for use with inexpensive, NEMA A or B single-speed, squirrel cage induction motors.



- X-Press Programming allows a technician to quickly input the crane's basic operating characteristics.
- Digital keypad display with English readout makes programming and troubleshooting simple and straight-forward.
- Safe Operating Windows™, Load Check™, and Multi-Level Password Protection reduce the possibility of unsafe operating conditions.



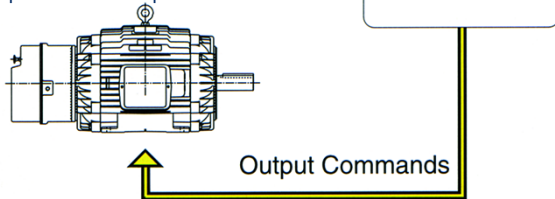
IMPULSE•VG+

Exclusive to the IMPULSE•VG+ Series 2 Crane Control, Load Float allows a load to be held aloft at zero speed without setting the electric brake. This allows for ultimate positioning with virtually no motor heating.

All these features and more, plus Electromotive Systems overhead material handling application experience and after market product support, are why IMPULSE Crane Controls are the proven market leaders.

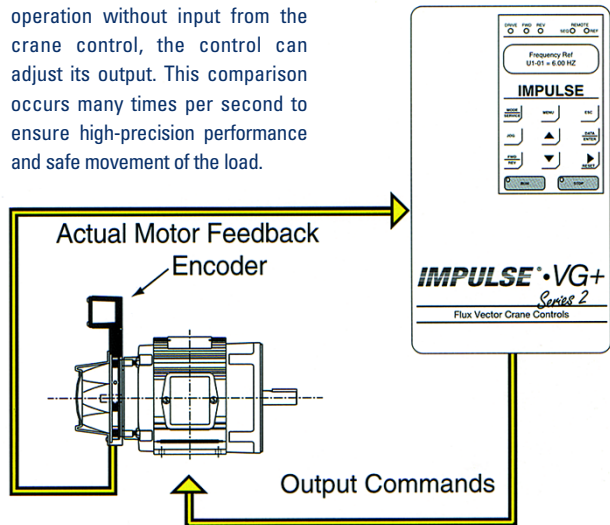
Open-Loop System

The IMPULSE•G+ Series 2 can be used as an open-loop vector crane control. At setup, the crane control is “auto-tuned” to learn the parameters of its motor. During operation, the IMPULSE•G+ Series 2 compares its output speed command against an internal mathematical model. It does this many times per second. Based on what the crane control calculates its motor should be doing, adjustments are made, ensuring a very precise level of operation.



Closed-Loop System

A flux vector control, IMPULSE•VG+ Series 2 relies on feedback from the motor via an encoder. This closed-loop system allows the control to know what the motor is doing at all times. If the motor changes its operation without input from the crane control, the control can adjust its output. This comparison occurs many times per second to ensure high-precision performance and safe movement of the load.



Capabilities

	G+ Series 2 Adjustable Frequency/Open Loop Vector Controls	VG+ Series 2 Flux Vector Controls
Ratings:	200-240 VAC, 6 to 300 AMP (1 to 125 HP) 380-460 VAC, 1.9 to 605 AMP (1 to 500 HP) 500-600 VAC, 3.5 to 200 AMP (2 to 200 HP)	200-240 VAC, 6 to 300 AMP (1 to 125 HP) 380-460 VAC, 1.9 to 605 AMP (1 to 500 HP) 500-600 VAC, 3.5 to 200 AMP (2 to 200 HP)
Class of Service	CMAA Class A-F Service AISE TR6 Class 1 to 4 ASME HST-4M H1 to H5	CMAA Class A-F Service AISE TR6 Class 1 to 4 ASME HST-4M H1 to H5
Speed Range	40:1 in V/F 100:1 in Open Loop Vector	1000:1
Speed Control Methods	Up to 6 Distinct Speeds 2-Step Infinitely Variable 3-Step Infinitely Variable Analog Signal (0-10 VDC, 4-20 mA ±10 VDC)	Up to 6 Distinct Speeds 2-Step Infinitely Variable 3-Step Infinitely Variable Analog Signal (0-10 VDC, 4-20 mA±10 VDC)
Programmable Terminals	8 inputs, 6 programmable (4 additional inputs available as option) 2 programmable analog outputs 1-digital output-standard (4 additional outputs available as option)	8 inputs, 6 programmable (4 additional inputs available as option) 2 programmable analog outputs 3-digital outputs-standard (2 additional outputs available as option)
Applications	Traverse Motions Worm Gear and Mechanical Load Brakes Hoists	Traverse Motions Non-Mechanical Load Brakes Hoists
All Series 2 Crane Controls Include:		
<ul style="list-style-type: none"> • Exclusive Crane & Hoist Software • Two Year Warranty • 24-Hour On-Call Technical Support 		

Features

Safety

Slack Cable Detection*	Identifies a slack cable condition and provides a selectable response (stop, slow down, alarm)
Roll Back Detection*	Drive monitors brake functionality at start and stop
Torque Proving at Start*	
Brake Check at Stop*	
Safe Operating Windows™	Reduces the possibility of programming unsafe parameters
Load Check™	Reduces the possibility of lifting an overload
Quick Stop™	Reduces the possibility of crane collision
Multi-Level Password Protection	Limits unauthorized modification of drive parameters
Phase Loss Detection	In case of phase loss, brake will set immediately, retaining load
Interface Boards	120 V optically isolated-standard (Other voltages available as option)
UL/CUL Rated	Tested and certified by Underwriters Laboratory
Ground/Fault Short Circuit Protection	

Performance

Load Float™ *	Allows a load to be held aloft at zero speed without setting the electric brake
Weight Calculation*	Enables load weight to be calculated with an accuracy of $\pm 5\%$ of full load (0-10VD C Output)
X-Press Programming™	Allows programming initial setup in seconds
Swift-Lift™/ Ultra-Lift™	Allows overspeeding with light loads or empty hook
Reverse Plug Simulation™	Allows operator to smoothly and quickly stop and change directions without setting brake
Stall Prevention	Extends acceleration time and prevents the motor torque limits from being exceeded
Micro-Positioning™	Allows operator to make precise, slow moves
Torque Limit at Accel/Deceleration	Allows for load dependent Acceleration or Deceleration
Multi-Function Input Terminals	For end of travel/slow down limits stops or other options
Flash ROM	Stores last four fault occurrences, even after power-down, for diagnostic purposes
Elapsed Time Counter	Indicates actual time of operation (power on or run time)
Hoist Synchronization*	Synchronize up to 8 motors in master-slave configuration.

Reliability

Built-In Auto Tune	Maximizes performance and life of motor
Built-In Serial Communication	Provides reliable digital linkage among various crane system peripherals, including Modbus, Modbus+, Profibus and Devicenet
Operation/Fault Display	Simplifies setup and troubleshooting

*Features only on VG+ Series 2 Crane Controls

Keypad/Digital Display

Allows for

- programming the various drive parameters
- monitoring the functions of the drive
- reading alpha-numeric fault-diagnostic indications

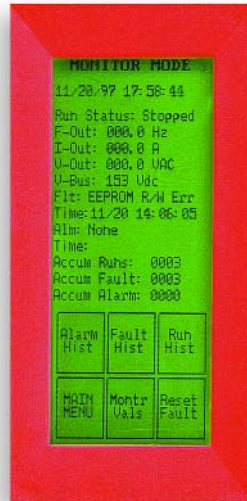


The English readout makes programming, troubleshooting, and diagnostics easy.

Options & Accessories

Custom Software

Electromotive Systems' engineering group can furnish custom drive software to meet unique application requirements. Please consult factory.



DataLogger

Designed to simplify troubleshooting and gather information for preventative maintenance, the DataLogger is a recording device for the IMPULSE Series 2 Crane Controls. This user-friendly device simply plugs into the keypad pocket of the drive and allows operators to easily access the run, alarm and fault histories. It includes enough memory to log the last 1024 drive run events and the last 512 alarm and fault events. A trace function is provided for viewing drive data that occurred prior to the alarm/fault condition.

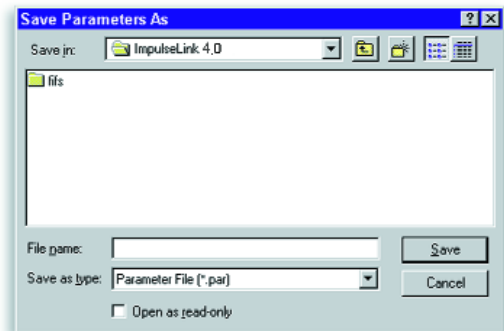
The touchpad soft keys and various screens on the DataLogger are completely intuitive

IMPULSE•Link

Designed to communicate with the IMPULSE Series 2 Crane Controls, the IMPULSE•Link is a Windows-based interactive drive software package. This user-friendly software allows you to accomplish the following:

- Upload and download drive parameters
- Adjust drive parameters online or offline
- View and print drive parameters
- View complete parameter descriptions
- Compare drive parameters

The Save Parameters As allows the user to save parameters to a different parameter file or create a new parameter file.



After Market Product Support

Electromotive Systems supports all of its IMPULSE Crane Controls with:

- 24 Hour On-Call Service
- On-Site Technical Support (when necessary)
- Emergency Crane Control Replacement
- A Two Year Warranty
- On-site and In-House Product Training Programs

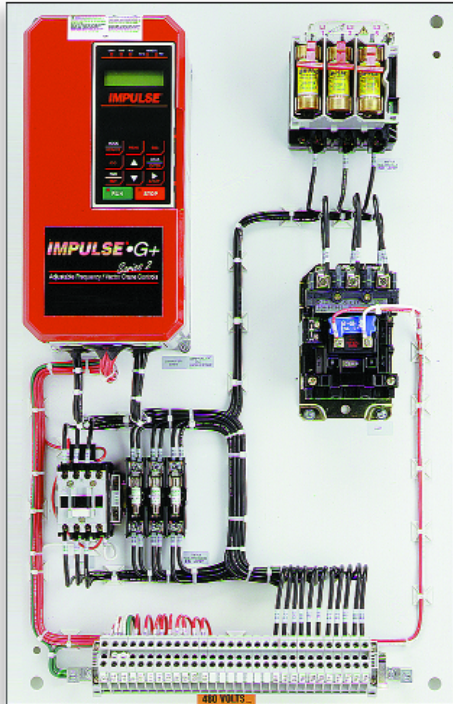
For wiring diagrams, drive ratings, and dimensions, please refer to S2TECH Data Sheet

Specifications

Specification	Specification Value and Information for All Models
Certification	UL, CUL (CE available upon request)
Rated input power supply volts & freq	3-phase 200/400, 208/415, 220/440, or 230/460 or 500/600 VAC; 50 or 60 Hz
Allowable input voltage fluctuation	+10% or -15% of nominal
Allowable input frequency fluctuation	±5% of nominal
Control method	Fully digital; sine-wave, pulse-width-modulated
Maximum output voltage (VAC)	Max output voltage 3-phase, 200/208/220/230V;380/400/415/440/460;500/575/600V (proportional to input voltage.)
Rated frequency (Hz)	Up to 150 Hz maximum
Output frequency accuracy	.01%—with digital reference command, -10° to 40° C; .1%—with analog reference command; 10 bits/10V; 25° C, ±10° C
Frequency reference resolution	Digital: .01 Hz; analog: .03 Hz (at 60 Hz)
Output frequency resolution	.01 Hz
Overload capacity	150% of rated load for 1 min
Remote frequency reference sources	0–10VDC (20kΩ); 4–20mA (250Ω); ±10VDC; serial (optional)
Accel/decel times	0.1 to 25.5 sec—2 sets; 4 parameters are independently adjustable
Braking torque	150% or more with dynamic braking (optional)
Motor overload protection	Electronic thermal overload relay; field-programmable
Overcurrent protection level (OC1)	200% of rated current
Circuit protection	Ground fault and blown-fuse protection
Overvoltage protection level	400/800/1000VDC
Undervoltage protection level	190/380/546VDC
Heatsink over temperature	Thermostat trips at 105° C
Torque limit selection	Separate functions for FORWARD, REVERSE, REGEN; all selectable from 0–300%
Stall prevention	Separate functions for accel, at-speed, and constant horsepower region
Other protection features	Output phase loss, input phase loss, failed-oscillator detection, and mechanical overload detection
DC bus voltage indication	Charge LED is on until DC bus voltage drops below 50VDC
Location	Indoors; requires protection from moisture, corrosive gases and liquids
Ambient operating temperature	+14° to 104° F (-10° to 40° C) for NEMA 1; 14° to 122° F (-10° to 50° C) for open chassis
Storage temperature	-4° to 140° F (-20° to 60° C)
Humidity	90% relative; noncondensing
Vibration	1 G less than 20 Hz; 0.2 G for 20-50 Hz
Elevation	3300 ft. (1000m) or less

Feel free to call any of our Application Engineers with

TCONTROLS® Complete Panels



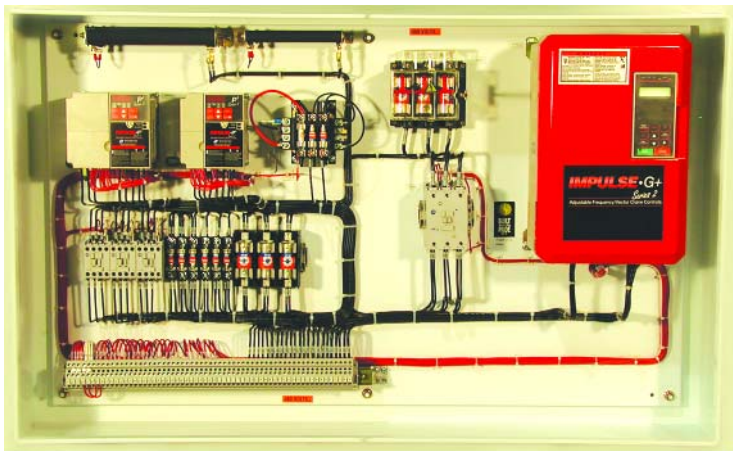
IMPULSE pre-engineered TCONTROLS panels are the perfect companion to Electromotive Black Max motors, particularly when short deliveries are required.

Pre-Engineered Panels

IMPULSE•G+ Series 2 and IMPULSE•VG+ Series 2 drives can be purchased as part of a complete, pre-engineered TCONTROLS Motor Control System. These quick-ship, easy-to-install panels offer cost-effective and reliable operation using high quality components. Available in 1 to 30 HP at 230V and 1-60 HP at 460V, all panels are tested and quality-approved prior to shipment.

Standard Features Include:

- 120 Volt control voltage interface card
- Brake contactor
- Branch fusing
- Built-in electronic motor thermal overload protection
- Dynamic braking resistor(s)
- All wiring to a single terminal strip
- Clearly marked wires (at both ends)
- Basic wiring diagram
- NEMA 12 enclosure



This three-motion control panel features IMPULSE G+ Crane Control on the hoist and P3 Series 2 control on bridge and trolley motions.

Custom Panels

Custom TCONTROL Panels with IMPULSE Series 2 Crane Controls provide the ultimate solution for over-head material handling. Built and designed to your specifications, these panels include all the standard features plus a wide variety of other control options. In addition, our seasoned engineering staff can provide technical support and overhead handling expertise when quoting your project.

For wiring diagrams, drive ratings, and dimensions, please refer to S2TECH Data Sheet

questions about your specific project at 1-800-288-8178

PRECISION SOLUTIONS

FOR OVERHEAD MATERIAL HANDLING

Engineered Solutions & Automation

- Heavy Duty / Severe Duty Crane Control
- Automatic Crane & Monorail Process System Control
- Crane Positioning, Status & Diagnostics
- Collision Avoidance Control
- Crane Swing Control
- Crane Communication Control

IMPULSE® AC Adjustable Frequency Drives

- 230, 460, and 575 Volt Power Platforms—Up to 1,500 Hp
- Exclusive Application Software
- Specific Crane & Hoist Software

OmniPulse™ DC Digital Drives

- 30 to 500 HP
- 200 to 600 VDC

MAC™•2000 Motor Acceleration Control

- Single & 2 Speed

Variable Speed Motor Control Panels

- Standard Pre-Engineered Systems
- Custom Engineered Systems

Motors & Accessories

- Standard Inverter Duty AC Induction Motors
- Flux Vector Designed Motors

ELECTROBAR®, ELECTROBAR® FS, ELECTROBAR® ELITE, & FABA® Conductor Bar Systems

ELECTROMOTIVE™ Festooning Systems

- Standard Duty
- Heavy Duty
- Mill Duty

SBP® & SBP2® Pendant Push Button Stations

- Standard 2 thru 12 Button Stations
- Custom Configured Stations

PulseStar® Radio Remote Control Systems

ReFlx®

- Collision Avoidance and Distance Detection Systems



MAGNETEK
UNCOMMON POWER

Electromotive Systems

P.O. Box 13615
Milwaukee, WI 53213
Phone: 1-800-288-8178
Fax: 1-800-298-3503

N49 W13650 Campbell Drive
Menomonee Falls, WI 53051

WWW.ELECTROMOTIVE.COM

Brochure No. SER2-03A
Copyright © 2003
Printed in U.S.A.



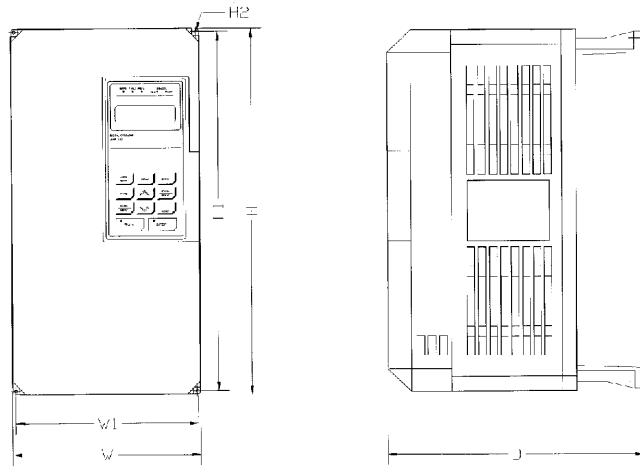
MAGNETEK
UNCOMMON POWER

Electromotive Systems

IMPULSE ^{G+ Series 2}
^{VG+ Series 2}

Adjustable Frequency Crane Controls
Technical Data





230V Dimensions and Drive Ratings

Voltage Rating	Model Number	*Max Full Load Amps	Rated HP (Appx.)	Overall Dimensions in inches (mm)			Mounting Dimensions in inches (mm)			Wt. Lbs/ (kg)
				W	H	D	W1	H1	d	
230 Volt	2006-AFG+	6	1	5.51	11.02	6.30	4.95	10.47	0.28	6.5
	2006-FVG+			(140)	(280)	(160)	(126)	(266)	(7)	(3)
	2008-AFG+	8	2	5.51	11.02	6.30	4.95	10.47	0.28	6.5
	2008-FVG+			(140)	(280)	(160)	(126)	(266)	(7)	(3)
	2011-AFG+	11	3	5.51	11.02	7.09	4.95	10.47	0.28	10
	2011-FVG+			(140)	(280)	(180)	(126)	(266)	(7)	(4.5)
	2017-AFG+	17.5	5	5.51	11.02	7.09	4.95	10.47	0.28	10
	2017-FVG+			(140)	(280)	(180)	(126)	(266)	(7)	(4.5)
	2025-AFG+	25	7.5	7.87	11.81	8.07	7.32	11.22	0.31	12
	2025-FVG+			(200)	(300)	(205)	(186)	(285)	(8)	(5.5)
	2033-AFG+	33	10	7.87	11.81	8.07	7.32	11.22	0.31	13
	2033-FVG+			(200)	(300)	(205)	(186)	(285)	(8)	(6)
	2054-AFG+	49	15	9.84	14.96	8.86	9.29	14.37	0.30	24
	2054-FVG+			(250)	(380)	(225)	(236)	(365)	(7.5)	(10.8)
	2068-AFG+	64	20	9.84	14.96	8.86	9.29	14.37	0.30	24
	2068-FVG+			(250)	(380)	(225)	(236)	(365)	(7.5)	(10.8)
	2080-AFG+	80	25	12.80	17.72	11.22	10.83	17.13	0.30	62
	2080-FVG+			(325)	(450)	(285)	(275)	(435)	(7.5)	(28)
2130-AFG+	130	40	16.73	26.57	13.78	12.60	25.59	0.49	134	
2130-FVG+			(425)	(675)	(350)	(320)	(650)	(12.5)	(61)	
2160-AFG+	160	50	16.73	26.57	13.78	12.60	25.59	0.49	137	
2160-FVG+			(425)	(675)	(350)	(320)	(650)	(12.5)	(62)	
2224-AFG+	224	75	18.70	31.50	13.78	14.57	30.51	0.49	176	
2224-FVG+			(475)	(800)	(350)	(370)	(775)	(12.5)	(80)	
2300-AFG+	300	100	22.64	36.42	15.75	17.52	35.24	0.59	298	
2300-FVG+			(575)	(925)	(400)	(445)	(895)	(15)	(135)	

*Note: Applications such as high duty cycles (CMAA Class E or F) in conjunction with high ambient temperatures or other unique environmental conditions can sometimes impact drive ratings. Please consult factory.

- AFG+ Denotes IMPULSE•G+ Series 2
- FVG+ Denotes IMPULSE•VG+ Series 2

Due to ongoing product improvements, data is subject to change without notice.

460V Dimensions and Drive Ratings

Voltage Rating	Model Number	*Max Full Load Amps	Rated HP (Appx.)	Overall Dimensions in inches (mm)			Mounting Dimensions in inches (mm)			Wt. Lbs/ (kg)
				W	H	D	W1	H1	d	
460 Volt	4001-AFG+	1.8	.5	5.51	11.02	6.30	4.95	10.47	0.28	6.5
	4001-FVG+			(140)	(280)	(160)	(126)	(266)	(7)	(3)
	4003-AFG+	3.4	1	5.51	11.02	6.30	4.95	10.47	0.28	6.5
	4003-FVG+			(140)	(280)	(160)	(126)	(266)	(7)	(3)
	4005-AFG+	4.8	2	5.51	11.02	7.09	4.95	10.47	0.28	8.8
	4005-FVG+			(140)	(280)	(180)	(126)	(266)	(7)	(4)
	4008-AFG+	8	5	5.51	11.02	7.09	4.95	10.47	0.28	10
	4008-FVG+			(140)	(280)	(180)	(126)	(266)	(7)	(4.5)
	4011-AFG+	11	7.5	5.51	11.02	7.09	4.95	10.47	0.28	10
	4011-FVG+			(140)	(280)	(180)	(126)	(266)	(7)	(4.5)
	4014-AFG+	14	10	7.87	11.81	8.07	7.32	11.22	0.31	13
	4014-FVG+			(200)	(300)	(205)	(186)	(285)	(8)	(6)
	4021-AFG+	21	15	7.87	11.81	8.07	7.32	11.22	0.31	13
	4021-FVG+			(200)	(300)	(205)	(186)	(285)	(8)	(6)
	4028-AFG+	27	20	9.84	14.96	8.86	9.29	14.37	0.30	24
	4028-FVG+			(250)	(380)	(225)	(236)	(365)	(7.5)	(11)
	4034-AFG+	34	25	9.84	14.96	8.86	9.29	14.37	0.30	24
	4034-FVG+			(250)	(380)	(225)	(236)	(365)	(7.5)	(11)
	4041-AFG+	41	30	12.80	17.72	11.22	10.83	17.13	0.30	60
	4041-FVG+			(325)	(450)	(285)	(275)	(435)	(7.5)	(27)
	4052-AFG+	52	40	12.80	17.72	11.22	10.83	17.13	0.30	60
	4052-FVG+			(325)	(450)	(285)	(275)	(435)	(7.5)	(27)
	4065-AFG+	65	50	12.80	24.61	11.22	10.83	24.02	0.30	97
	4065-FVG+			(325)	(625)	(285)	(275)	(610)	(7.5)	(44)
	4080-AFG+	80	60	12.80	24.61	11.22	10.83	24.02	0.30	97
	4080-FVG+			(325)	(625)	(285)	(275)	(610)	(7.5)	(44)
	4096-AFG+	96	75	12.80	24.61	11.22	10.83	24.02	0.30	97
	4096-FVG+			(325)	(625)	(285)	(275)	(610)	(7.5)	(44)
4128-AFG+	128	100	17.91	32.28	13.78	13.78	31.30	0.49	174	
4128-FVG+			(455)	(820)	(350)	(350)	(795)	(12.5)	(79)	
4165-AFG+	165	125	17.91	32.28	13.78	13.78	31.30	0.49	176	
4165-FVG+			(455)	(820)	(350)	(350)	(795)	(12.5)	(80)	
4224-AFG+	224	150	22.64	36.42	14.76	17.52	35.24	0.59	298	
4224-FVG+			(575)	(925)	(375)	(445)	(895)	(15)	(135)	
4302-AFG+	302	200	22.64	36.42	15.75	17.52	35.24	0.59	320	
4302-FVG+			(575)	(925)	(400)	(445)	(895)	(15)	(145)	
4450-AFG+	450	350	37.40	57.09	17.13	29.53	55.12	0.98	794	
4450-FVG+			(950)	(1450)	(435)	(750)	(1400)	(25)	(360)	
4605-AFG+	605	500	37.80	62.99	17.91	29.53	61.02	0.98	926	
4605-FVG+			(960)	(1600)	(455)	(750)	(25)	(25)	(420)	

***Note:** Applications such as high duty cycles (CMAA Class E or F) in conjunction with high ambient temperatures or other unique environmental conditions can sometimes impact drive ratings. Please consult factory.

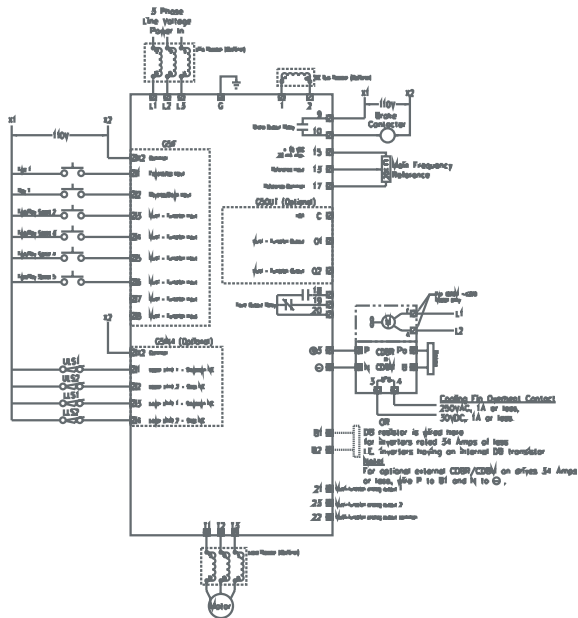
- AFG+ Denotes IMPULSE•G+ Series 2
- FVG+ Denotes IMPULSE•VG+ Series 2

Due to ongoing product improvements, data is subject to change without notice.

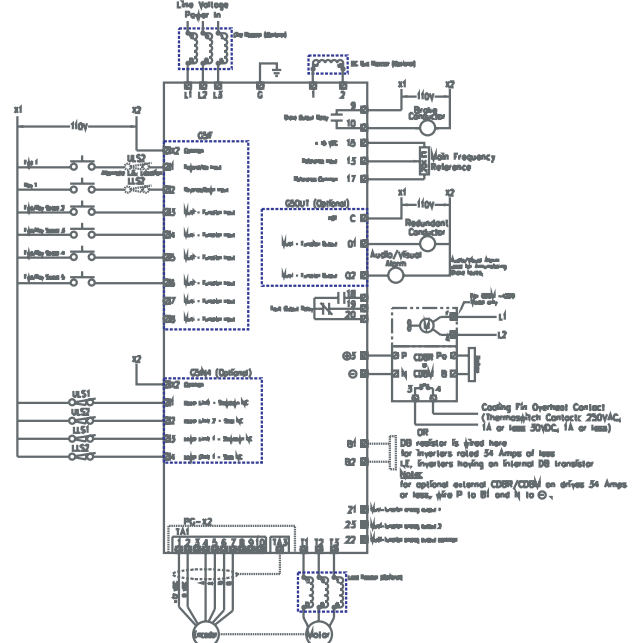
575V Dimensions and Drive Ratings

Voltage Rating	Model Number	*Max Full Load Amps	Rated HP (Appx.)	Overall Dimensions in inches (mm)			Mounting Dimensions in inches (mm)			Wt. Lbs/ (kg)
				W	H	D	W1	H1	d	
575 Volt	5003-AFG+ 5003-FVG+	3.5	2	5.51 (140)	11.02 (280)	7.09 (180)	4.96 (126)	10.47 (266)	0.28 (7)	8.8 (4)
	5004-AFG+ 5004-FVG+	4.1	3	5.51 (140)	11.02 (280)	7.09 (180)	4.96 (126)	10.47 (266)	0.28 (7)	8.8 (4)
	5006-AFG+ 5006-FVG+	6.3	5	7.87 (200)	11.81 (300)	8.07 (205)	7.32 (186)	11.22 (285)	0.31 (8)	13 (6)
	5009-AFG+ 5009-FVG+	9.8	7.5	7.87 (200)	11.81 (300)	8.07 (205)	7.32 (186)	11.22 (285)	0.31 (8)	14 (6.5)
	5012-AFG+ 5012-FVG+	12.5	10	7.87 (200)	11.81 (300)	8.07 (205)	7.32 (186)	11.22 (285)	0.31 (8)	14 (6.5)
	5017-AFG+ 5017-FVG+	17	15	9.84 (250)	14.96 (380)	8.86 (225)	9.29 (236)	14.37 (365)	0.29 (7.5)	28 (13)
	5022-AFG+ 5022-FVG+	22	20	9.84 (250)	14.96 (380)	8.86 (225)	9.29 (236)	14.37 (365)	0.29 (7.5)	28 (13)
	5027-AFG+ 5027-FVG+	27	25	15.75 (400)	29.53 (750)	11.22 (285)	11.81 (300)	28.74 (730)	0.39 (10)	97 (44)
	5032-AFG+ 5032-FVG+	32	30	15.75 (400)	29.53 (750)	11.22 (285)	11.81 (300)	28.74 (730)	0.39 (10)	97 (44)
	5041-AFG+ 5041-FVG+	41	40	22.64 (575)	33.46 (850)	11.81 (300)	18.70 (475)	32.48 (825)	0.49 (12.5)	156 (72)
	5052-AFG+ 5052-FVG+	52	50	22.64 (575)	33.46 (850)	11.81 (300)	18.70 (475)	32.48 (825)	0.49 (12.5)	156 (72)
	5062-AFG+ 5062-FVG+	62	60	22.64 (575)	33.46 (850)	11.81 (300)	18.70 (475)	32.48 (825)	0.49 (12.5)	156 (72)
	5077-AFG+ 5077-FVG+	77	75	22.64 (575)	41.34 (1050)	12.80 (325)	18.70 (475)	40.35 (1025)	0.49 (12.5)	195 (90)
	5099-AFG+ 5099-FVG+	99	100	22.64 (575)	41.97 (1066)	12.80 (325)	18.70 (475)	40.35 (1025)	0.49 (12.5)	195 (90)
	5130-AFG+ 5130-FVG+	130	125	22.80 (579)	57.68 (1465)	12.99 (330)	18.70 (475)	48.23 (1225)	0.49 (12.5)	271 (125)
	5172-AFG+ 5172-FVG+	172	150	22.80 (579)	77.43 (1966.5)	13.98 (355)	18.70 (475)	61.81 (1570)	0.59 (15)	331 (153)
	5200-AFG+ 5200-FVG+	200	200	22.80 (579)	77.43 (1966.5)	13.98 (355)	18.70 (475)	61.81 (1570)	0.59 (15)	342 (158)

IMPULSE•G+ Series 2 Wiring Diagram



IMPULSE•VG+ Series 2 Wiring Diagram



Due to ongoing product improvements, data is subject to change without notice.

PO Box 13615
Milwaukee, WI 53213
Phone: 800-288-8178
Fax: 800-298-3503

N49 W13650 Campbell Drive
Menomonee Falls, WI 53051

www.electromotive.com
Brochure No. G+/VG+S2 TECH-04
Copyright© 2004
Printed U.S.A.